

AMENDMENTS TO THE CLAIMS:

This listing of the claims replaces all prior versions, and listings, of claims in the application.

LISTING OF CLAIMS:

- 1                   1. (currently amended) A method ~~for determining a bad link in a ring of~~  
2 ~~linked devices including a start-up device and plurality of linked devices with each device in~~  
3 ~~the ring including a receiver and a transmitter, with the receiver of a particular device coupled~~  
4 ~~to the transmitter of a preceding device in the ring and with the transmitter of the particular~~  
5 ~~device coupled to the receiver of a following device in the ring, the method comprising the~~  
6 ~~steps of:~~
  - 7                   ~~at the start-up device:~~
    - 8                   ~~transmitting an initial command from a supervisory device included in a ring~~  
9 ~~of linked devices including the supervisory device and a plurality of port devices, with each~~  
10 ~~device in the ring including an output and an input, with the input of each device in the ring~~  
11 ~~coupled by an upstream link to the output of an upstream device in the ring and with the~~  
12 ~~output of each device in the ring coupled by a downstream link to the input of a downstream~~  
13 ~~device in the ring and with the initial command a transmitted position command having a~~  
14 ~~device number field holding an initial value;~~    - 15                   ~~receiving the initial command on the upstream link coupled to a port device~~  
16 ~~and, when the command is received, incrementing a value held in the device number field~~  
17 ~~and transmitting the initial command with an incremented value on the downstream link~~  
18 ~~coupled to the port device a received position command having a device number field~~  
19 ~~holding a received value;~~    - 20                   ~~initially outputting link messages on the downstream link coupled to each port~~  
21 ~~device, with the link messages holding a link position value equal to a fixed value;~~    - 22                   ~~subsequently outputting link messages on the downstream link coupled to each~~  
23 ~~port device, with the link messages holding a link position value equal to an incremented link~~  
24 ~~position value where the incremented link position value is equal to the link position value~~  
25 ~~received on the upstream link incremented by one;~~    - 26                   ~~storing a new link position value received on the upstream link coupled to the~~  
27 ~~supervisory device; and~~

28 comparing the new link position value to the number of devices in the ring to  
29 determine the location of a bad link in the ring of linked devices if the initial command is not  
30 received at the supervisory device before a time period expires  
31 indicating that all links are good if the received value is equal to an expected  
32 value;  
33 indicating that a link is bad if the received value is not equal to the expected  
34 value and indicating the location in the ring of a bad link based on the difference between the  
35 received value and the expected value;  
36 at a linked device:  
37 incrementing a value held in the device number field of a received position  
38 command to form an incremented value and transmitting a modified position command  
39 having a device number field holding the incremented value if a position command is  
40 received;—and  
41 transmitting a position command having a device number field holding the  
42 initial value if no valid position command is received.

2. (currently amended) The method of claim 1 ~~where the all the devices on~~  
the management ring are disposed on a platform and the platform includes a storage device  
indicating the number of devices disposed on the platform, the method further comprising:  
at the start-up device:  
reading an external ~~the~~ storage device to read a platform value indicating the  
number of devices in the ring; ~~and~~  
comparing the received value to the platform value to determine the location  
of a defective link.

1                      3. (Canceled)

1                   4. (currently amended) A system for determining a bad link in a ring of  
2 linked devices including a start-up device and plurality of linked devices with each device in  
3 the ring including a receiver and a transmitter, with the receiver of a particular device coupled  
4 to the transmitter of a preceding device in the ring and with the transmitter of the particular  
5 device coupled to the receiver of a following device in the ring, the system comprising:  
6                   a start-up device including:

means for transmitting an initial command from a supervisory device included in a ring of linked devices including the supervisory device and a plurality of port devices, with each device in the ring including an output and an input, with the input of each device in the ring coupled by an upstream link to the output of an upstream device in the ring and with the output of each device in the ring coupled by a downstream link to the input of a downstream device and with the initial command ~~a transmitted position command~~ having a device number field holding an initial value;

means for receiving the initial command on the upstream link coupled to a port device and, when the command is received, incrementing a value held in the device number field and transmitting the initial command with an incremented value on the downstream link coupled to the port device ~~a received position command having a device number field holding a received value;~~

means for initially outputting link messages on the downstream link coupled to each port device, with the link messages holding a link position value equal to a fixed value;

means for subsequently outputting link messages on the downstream link coupled to each port device, with the link messages holding a link position value equal to an incremented link position value where the incremented link position value is equal to the link position value received on the upstream link incremented by one;

means for storing a new link position value received on the upstream link coupled to the supervisory device; and

means for comparing the new link position value to the number of devices in the ring if the initial command is not received at the supervisory device before a time period expires to determine the location of a bad link in the ring of linked devices

~~means for indicating that all links are good if the received value is equal to an expected value;~~

~~means for indicating that a link is bad if the received value is not equal to the expected value and indicating the location in the ring of a bad link based on the difference between the received value and the expected value;~~

~~a linked device including:~~

~~means for incrementing a value held in the device number field of a received position command to form an incremented value and transmitting a modified position~~

39 ~~command having a device number field holding the incremented value if a position command~~  
40 ~~is received;—and~~  
41 ~~means for transmitting a position command having a device number field~~  
42 ~~holding the initial value if no position command is received.~~

1 5. (currently amended) The system of claim 4 ~~where all the devices on the~~  
2 ~~management ring are disposed on a platform and the platform includes a storage device~~  
3 ~~indicating the number of devices disposed on the platform, the start-up device further~~  
4 ~~comprising:~~  
5 ~~means for reading a platform value from an external the storage device~~  
6 ~~indicating the number of devices in the ring;—and~~  
7 ~~means for comparing the received value to the platform value to determine the~~  
8 ~~location of a bad link.~~

1 6 -7. (canceled)

1 8. (currently amended) A system ~~for determining a bad link in a ring of~~  
2 ~~linked devices, said system comprising:~~  
3 ~~a start-up device including:~~  
4 ~~a management interface having a transmitter and a receiver; and~~  
5 ~~a supervisory device for use in a ring of linked devices including the~~  
6 ~~supervisory device and a plurality of port device, with each device in the ring including an~~  
7 ~~output and an input, with the input of each device in the ring adapted to be coupled by an~~  
8 ~~upstream link to the output of an upstream device in the ring and with the output of each~~  
9 ~~device in the ring adapted to be coupled by a downstream link to the input of a downstream~~  
10 ~~device in the ring, with the supervisory device configured to transmit an initial command~~  
11 ~~having a device number field a controller coupled to the transmitter to transmit a position~~  
12 ~~command having a position field holding an initial value and with the supervisory device~~  
13 ~~configured to store a new link position value received on the upstream link coupled to the~~  
14 ~~supervisory device and configured to compare the new link position value to the number of~~  
15 ~~devices in the ring to determine the location of a bad link in the ring of linked devices if the~~  
16 ~~initial command is not received at the supervisory device before a time period expires and~~  
17 ~~coupled to the receiver to receive a position command having a position field holding a~~

18 ~~received value, where the controller compares the received value to an expected value,~~  
19 ~~indicates that all links are good if the received value is equal to the expected value, indicates~~  
20 ~~that a link is bad if the received value is not equal to the expected value and determines the~~  
21 ~~location of a bad link based on the difference between the received value and the expected~~  
22 ~~value;~~  
23 ~~a linked device including:~~  
24 ~~with each port device configured to initially output link messages on the~~  
25 ~~downstream link coupled to each port device, with the link messages holding a link position~~  
26 ~~value equal to a fixed value, and to subsequently output link messages on the downstream~~  
27 ~~link coupled to each port device, with the link messages holding a link position value equal to~~  
28 ~~an incremented link position value, where the incremented link position value is equal to the~~  
29 ~~link position value received on the upstream link incremented by one a management interface~~  
30 ~~having a transmitter and a receiver; and~~  
31 ~~a management interface controller coupled to the receiver to receive a position~~  
32 ~~command from the first upstream device having a position field holding a received value,~~  
33 ~~where the controller increments the received value to generate an incremented value and with~~  
34 ~~the controller coupled to the transmitter to transmit a modified position command having a~~  
35 ~~position field holding the incremented value or, if no valid position command is received, the~~  
36 ~~controller transmits a position command having a position field holding the initial value.~~